

MANVI GUPTA

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EDUCATION

RWTH Aachen University, Germany

October 2019 - February 2020

RWTH Exchange Worldwide Scholarship Recipient (DAAD)

Overall Grade: 9.25/10

Indian Institute of Technology(IIT) Mandi

August 2017 - July 2021

Bachelor of Technology (B.Tech.)

CGPA: 9.24/10

Computer Science & Engineering

(Rani Gonsalves Memorial Medal Awardee)

WORK EXPERIENCE

Software Development Engineer - Adobe Systems India

Jul 2021 - Present

Cloud Tehcnology Unit (Sensei & Search Team)

Working on rebuilding Adobe's internal Machine Learning platform.

Product Intern - Adobe Systems India

May 2020 - July 2020

Built a Machine Learning pipeline on a distributed Kubernetes Platform & developed a POC for MLflow & Kubeflow capabilities.

Received *Pre-Placement Offer* for full time role as Member of Technical Staff based on excellent performance during the internship.

Software Administrator - Book Nook IIT Mandi

Aug 2018 - Sept 2019

Refactored & added new features to the Book Renting Software of Recreational Library at IIT Mandi.

PROJECTS

MUTUAL INFORMATION ESTIMATION IN DNNs

September 2020 - Present

Major Technical Project

Dr. Samar Agnihotri (IIT Mandi)

- Implemented the Ensemble Dependency Graph Estimator (EDGE) for Scalable Mutual Information Estimation and its variation. Compared the results with that obtained from the HSIC criterion.
- Long term goal is to compare different algorithms for the closest estimate of mutual information across hidden layers in a Deep Neural Network and prove/disprove the Information Bottleneck Principle.

OPTIMIZING FUNCTIONAL LANGUAGE COMPILERS

May 2021 - June 2021

Program Analysis

Dr. Manas Thakur (IIT Mandi)

- Performed a detailed survey on the optimization techniques used by functional language compilers.
- Compared and analysed them for their extent of optimization and the associated overheads.
- Suggested potential improvements in the existing methods, & ways to come up with new optimizations.

COUNT-TO-INFINITY PROBLEM

August 2020 - September 2020

Survey & Research Project

Prof. Timothy A. Gonsalves (IIT Mandi)

- Conducted a detailed Literature Survey on possible ways to solve the *count-to-infinity problem* in Distance Vector Routing, and presented an error-free solution that avoids this problem.

CALL TREE REVERSAL

October 2019 - February 2020

Using Mixed Integer Programming

Prof. Dr. Uwe Naumann (RWTH Aachen)

- Learnt about checkpointing Function Call Trees using Algorithmic Differentiation that could help to increase program efficiency. Used GUROBI optimizer

CIF VALIDATOR WITH REST API

A real world tool to validate Crystallographic Information Files

April 2019 - June 2019

Dr. Arti Kashyap (IIT Mandi)

- As a team, created a functional RESTful API for validating Crystallographic Information Files (CIF).
- CIF File is parsed using PyCODCIF and the frontend is built on Barebone framework.
- In collaboration with the Material Science group at EPFL Switzerland. The tool is to be integrated on materialscloud.org.

TECHNICAL STRENGTHS

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|------------------------------|--|
| Computer Languages | C, C++, Python, Java, Scheme(Lisp), Haskell |
| Web Technologies | HTML, CSS, Flask, PHP |
| Machine Learning | Keras, Tensorflow, PyTorch, SciKit-Learn, MLflow |
| Familiar Technologies | MySQL, Hadoop, OpenCV, OpenMP, Git, Redmine |

RELEVANT COURSEWORK

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|---|------------------------------------|
| Mathematical Foundation of Computer Science | Machine Learning |
| Information and Database Systems | Paradigms of Programming |
| Data Structures and Algorithms | Satisfiability Checking |
| Computer Organization | High Performance Computing |
| Operating Systems & Computer Networks | Compiler Design & Program Analysis |

POSITION OF RESPONSIBILITY

Founder Coordinator, ACM-W Chapter IIT Mandi

Chairperson, August 2019 - August 2020

- Officially set up the new community. Guided girl students about opportunities in the field of computing and connect the students to women leaders of the world.

Undergraduate Teaching Assistant

- *Paradigms of Programming (Feb. 2021 - June 2021)*
- *Data Science III (Sep. 2020 - Dec. 2020)*
- *Information & Database Systems (Feb. 2020 - Sep. 2020)*

SEMINARS & WORKSHOPS ATTENDED

ACM India Summer School

Cyber Security and Data Analytics

IIT Delhi

July 2019

- Learnt about security concerns on Social Media, and Cryptographic techniques used in SSL.
- Also got introduced to Natural Language Processing, as a method of encryption-decryption.

ACADEMIC & EXTRA-CURRICULAR ACHIEVEMENTS

- Overall rank 3 in B.Tech class of 2017-2021, among all the departments.
- Winner of *Hacking the Google Maps*, online competition by Heuristics IIT Mandi, in May 2020.
- Runner up in Astronomy Club Hackweek-2018 held at IIT Mandi.
- Winner of Intra College Diwali Photography Competition 2017.
- First, among the 7 teams from the college in Flipkart GRiD Machine Learning challenge.
- Represented IIT Mandi at Inter IIT Cultural Meet 2017, at IIT Kanpur.
- Ranked in All-India Top 1% (amongst 11,86,000 candidates) in JEE Mains 2017 and Top 2.8% (amongst 1,59,540 candidates) in IIT-JEE Advanced 2017